The Frog belongs to the Batrachian order *Anoura*, to the family *Ranidæ*, and to the genus *Rana*.

The order Anoura, to which all frogs and toads belong, is a remarkably homogeneous one, consisting as it does of a multitude of species, all differing from each other by comparatively trifling characters.

Altogether there are about 600 species of frogs and toads, arranged in about 130 different genera.

St. George Mivart

(*To be continued.*)

JEAN CHACORNAC*

THIS eminent French astronomer died on the 6th of last September, having been born at Lyon, June 21, 1823. Chacornac is chiefly known for his discoveries among the planetoids whose orbits are contained between those of Mars and Jupiter. In his earlier years he devoted himself to commerce, but having, in 1851, made the acquaintance of M. Valz, Director of the Marseilles Observatory, Chacornac became an enthusiastic student of astronomy, devoting himself to research in connection with the solar spots and to the assiduous exploration of the heavens. On his discovery of a new comet on May 15, 1852, he made up his mind to abandon commerce and devote himself entirely to astronomy.

In 1852, M. Valz, following the example of Mr. Hind, had drawn some charts of the region of the heavens in which the small planets were likely to be met with, and on Chacornac taking the above decision, Valz entrusted to him the construction of the "Atlas écliptique." Chacornac commenced his observations on the region of the small planets on June 1, 1852, and on September 20 he discovered Massalia, and on April 6, 1853, Phocæa, and that with an equatorial telescope of only thirteen centimetres aperture.

The poor resources which were at the disposal of the Marseilles Observatory did not permit of M. Valz's undertaking the publication of the ecliptic charts; and for this purpose he addressed the Academy of Sciences, which had appointed a commission to examine the question. M. Le Verrier, who at this time sought to reform the *personnel* of the Paris Observatory, called to his aid M. Chacornac, who, on March 4, 1854, was appointed Adjoint Astronomer.

At the Observatory of Paris, Chacornac had at his disposal an equatorial of 7 in. aperture, equal to that of Mr. Hind; he set down in his charts stars up to the 13th magnitude, and the limits which they embraced were at the same time somewhat extended. The publication commenced very soon after, and from 1854 to 1863, thirty-six charts, of which some contained not less than 3,000 stars, were put into the hands of astronomers.

During the construction of these charts, Chacornac discovered many small planets—Amphitrite (March 3, 1854), Polymnia (October 28, 1854), Circe (April 6, 1855), Lydia (January 12, 1856), Lætitia (February 8, 1856), Olympia (September 12, 1860). At the same time he observed all the comets which were then visible and defined, with the telescope of Foucault, of 80 centimetres, many spiral nebulæ, previously studied by Herschel. The drawings of M. Chacornac are among the most careful we possess, and appear to show that nebulæ of this kind undergo in time slight variations of form.

This collection of remarkable works brought to the Astronomer of the Paris Observatory many academic and honorary rewards: thus, he obtained the Lalande Prize in 1852, 53, 54, 55, 56, 60, and 1863, became titular astronomer February 22, 1857, and Chevalier of the Legion of Honour, August 15, 1857.

His labours, however, and their attendant anxieties, told upon his health. After going to Spain, where he went to observe the total eclipse of the sun of July 18, 1860, the ecliptic charts were issued less frequently, and in June, 1863, he quitted the Observatory to retire to Ville Urbanne, in the suburbs of Lyon.

In his country retirement, M. Chacornac, whose spirit had preserved all its activity, constructed with his own hands a telescope of three metres focus, by means of which, until within the last few months, he assiduously observed the solar spots and their manifold transformations. In the description of their incessant changes he sought new proofs of the gaseous nature of the sun, an idea which he was one of the first to announce.

SCIENCE LECTURES AT CAMBRIDGE

THE following Lectures in Natural Sciences will be given at Trinity, St. John's, and Sidney Sussex Colleges during Michaelmas Term, 1873:—

On General Physics and Mechanics. By Mr. Trotter, Trinity, in Lecture Room No. 11 (Monday, Wednesday, Friday, at 11, commencing Wednesday, Oct. 15).

On Elementary Organic Chemistry. By Mr. Main, St. John's (Tuesday, Thursday, Saturday, at 12, in St. John's College Laboratory, commencing Thursday, Oct. 16). Instruction in Practical Chemistry will also be given.

On Palæontology (the Protozoa and Cœlenterata). By Mr. Bonney, St. John's (Tuesday and Thursday at 9, commencing Thursday, Oct. 16).

On Geology for the Natural Sciences Tripos. Preliminary matter and Petrology. By Mr. Bonney, St. John's (Monday, Wednesday, and Friday, at 10, commencing Wednesday, Oct. 15.) A Course on Physical Geology will be given in the Lent Term, and on Stratigraphical Geology in the Easter Term.

Papers will be given to Questionists every Saturday at 11, but the first paper will be set on Wednesday, Oct. 15, at 11, when arrangements will be made for further instruction should it be required.

On Botany, for the Natural Sciences Tripos. By Mr. Hicks, Sidney (Tuesday, Thursday, Saturday, at 11, in Lecture Room No. 1, beginning on Thursday, Oct. 16). The Lectures during this term will be on the Morphology of Phanerogamia.

A Course of Practical Physiology and Histology. By the Trinity Prælector in Physiology (Dr. Michael Foster) at the New Museums. Lectures on Tuesday, Thursday, Saturday, at 12, commencing Saturday, Oct. 25.

This course is intended for those who have gone through a course of Elementary Biology similar to that given last Easter Term.

THE AMERICAN ASSOCIATION

THE Portland Meeting of the American Association for the Advancement of Science was in almost every respect an exceptional success. Its general attendance was very large, and there was an unusual number of the older members, whose presence insures consideration of the more important topics, and gives dignity and force to the discussions. An especial effort had been made to exclude all inferior communications. A regulation had been adopted, compelling the presentation of an abstract of each paper before it was read; and the examining committee in determining from abstracts what papers should be read, exercised in general a rigorous but wise discretion. It will not be the case after this, as after previous meetings, that a considerable proportion of the communications actually read will have to be ignored in the printed proceedings. But even under such restrictions, the number of papers actually read was unusually

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* From an article in *La Revue Scientifique*, by M. G. Rayet, Chief Astronomer of the Meteorological Service at the Paris Observatory.

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large, and there were but few instances, as compared with previous years, of the pernicious practice of reading papers by title only—a practice which, if pushed to its logical conclusion, would result in the destruction of the meetings.

The discussions were kept well in hand, wandering but little from the subject, and being, though frequently brilliant, notably brief. There was in them almost an entire absence of any display of feeling, except an occasional expression of kindly regards between opponents whose differences did not extend beyond the debate; in fact, the cordiality of the meeting was one of its prominent features.

The newspaper press sent correspondents from distant cities—New York, Boston, and Chicago being well represented. The *New York Tribune* announced that its reports would be re-published in an extra, and determined to make that extra cover, with at least a fair extract, every communication read and accepted at the meeting, and the discussions elicited. The practical difficulties in the way of such an undertaking are considerable. All the sub-sections of the Association carry on their proceedings in separate rooms simultaneously. Many of the communications are technical, abstruse, and difficult to report, and have not been reduced to writing; it being the custom of some authors to delay preparation of MSS. for the official report till some months after the close of the meeting. Notwithstanding these obstacles and the expense involved in overcoming them, the extra was brought out with all the completeness proposed; thus anticipating the usual official publication by almost a year. It is a sheet of eight pages, and gives also an illustrated series of letters upon Deep Sea Dredging, as practised by the United States Commission of Fish and Fisheries, the whole containing as much reading-matter as would make a large duodecimo volume. The extra is sold for ten cents, this price including postage.

NOTES

SIR SAMUEL and Lady Baker arrived in London on Thursday evening last. The young African, a lad of about fifteen or sixteen years of age, in whom Lady Baker is said to take much interest, accompanied the party. Both Sir Samuel and Lady Baker looked well, and seemed in excellent spirits.

FOR the Biological Fellowship examination at Magdalen College, Oxford, there are five candidates, of which we are surprised to hear that three are graduates of the University of Cambridge. The election takes place on Saturday next.

MR. EDWARD BAGNALL POULTON, from Mr. Watson's School, Reading, has been elected to an open Physical Science Scholarship of 80*l.* per annum, in Jesus College, Oxford.

MISS POGSON, daughter of the Government Astronomer at Madras, has been appointed Assistant Astronomer.

THE American aëronaut, Mr. Samuel A. King, intends during September to make an extended balloon voyage from Buffalo, New York. For this purpose he is building a large balloon to replace the "Mammoth," which was destroyed by the recent great fire in Boston. It is Mr. King's purpose to make the longest overland voyage, if circumstances favour, ever yet accomplished. It is no part of his plan to go out over the ocean, nor to explore the sea, but he expects to be able to settle something about the upper currents when he comes down. His voyage is undertaken wholly in the interest of science, and, in view of the extraordinary degree of attention now being drawn to the subject of meteorology, the results will be regarded as of much more than ordinary importance. From a communication made by Mr. King in 1871 to the Washington Philosophical Society, it appeared that out of 170 aërial voyages made by him during the past twenty-five years, about twenty-five per cent. showed that the currents of the atmosphere were moving to the north-eastward; a second twenty-five per cent. gave westerly currents; and a third gave north-westerly currents. The remaining forty voyages were about equally distributed among northerly, southerly, and easterly currents. Mr. King's experience, therefore, agrees with that of most European aeronauts, who have repeatedly testified that there is no constant westerly current of air prevailing at any altitude above the earth's surface which they have been able to reach in their balloons.

CANADA is doing its part toward the exploration of the Great West. Besides the surveying parties out on the route of the Pacific Railroad, it has special parties in the field in connection with the Geological Survey and the Boundary Commission. Mr. Selwyn, F.G.S., Director of the Survey, and Mr. R. Bell, F.G.S., are at work on the great regions watered by the North Saskatchewan, and Mr. Richardson on the other side of the Rocky Mountains in British Columbia. Mr. G. M. Dawson, Associate of the School of Mines, Geologist of the Boundary Commission, has just completed a survey of the Lake of the Woods and its neighbourhood, and is now exploring the plains westward of Pembina. All these parties are provided with the means of making collections in the botany and zoology of the regions explored.

MR. J. A. HARVIE BROWN has sent us a reprint of an article by him which appeared in the *Scottish Naturalist* for July, advocating the establishment of a British Naturalist's Agency, on the model of the "American Naturalist's Agency," established at Salem, Mass. U.S. The American Agency has flourished and brought forth abundant and good fruit, and in an incredibly short space of time has become the acknowledged medium for the sale of the proceedings of all the learned societies in America, and through which advertisers on all natural history subjects make known their wants. The main purpose of the Agency is to facilitate the circulation of papers and pamphlets on Natural History, which, from the want of such an Agency, many who wish to possess them find it difficult to obtain, and which are often not even known beyond a narrow local circle. The Agency also undertake to publish new and republish old standard works in Natural History, and perform several other eminently useful offices which can only be sufficiently performed by some such central organisation. The very existence of such an Agency would create a demand for scientific knowledge. Such an Agency in this country would undoubtedly prove a great boon to naturalists, provided it were ably conducted, and fully acknowledged and supported by the leading scientific societies. Scientific circles in time, we believe, would be enlarged, and not be confined to the metropolis, or nearly so. There are plenty of good men out of London, Edinburgh, Glasgow, and the large towns who have no opportunities of reading, being removed from the principal scientific libraries. Not one individual, nor indeed any one society, could set such an undertaking afloat, but if all the leading societies would jointly discuss its merits and demerits, and at length bring it carefully and repeatedly before the notice of the British Association, there is every likelihood that it would become a complete success. To arrive at this first step it is necessary to ventilate the suggestion, and this cannot be better done than by bringing it before the notice of the local societies, and asking each to assist in bringing it finally before a higher court. Parties interested and desirous of seeing such a scheme successful may communicate with Dr. F. Buchanan White, editor of *Scottish Naturalist*, Perth, or with John Harvie Brown, Dunipace House, Falkirk.

ON Monday last a meeting was held at the Mansion House with the view of promoting technical education in the City. The

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